

Final

Amended Parcel B Record of Decision

Hunters Point Shipyard San Francisco, California

January 14, 2009

Prepared for:

Base Realignment and Closure Program Management Office West San Diego, California

Prepared by:

ChaduxTt, A Joint Venture of St. George Chadux Corp. and Tetra Tech EM Inc. 1230 Columbia Street, Suite 1000 San Diego, California 92101

Prepared under:

Naval Facilities Engineering Command Contract Number N62473-07-D-3213 Delivery Order 0019

TABLE A.4-1

REMEDIATION GOALS

Radionuclide	Surfaces (dpm/1	00 cm ²)	Soil ^c (pCi/g)		
	Equipment, Waste ^a	Structures ^b	Outdoor Worker ^d	Residential ^d	
cesium-137	5,000	5,000	0.113	0.113	
cobalt-60	5,000	5,000	0.0602	0.0361	
plutonium-239	100	24.7	14.0	2.59	
radium-226	100	100	1.0 ^e	1.0 ^e	
strontium-90	1,000	1,000	10.8	0.331	
thorium-232	1,000	36.5	2.7	1.69	
hydrogen-3	5,000	5,000	4.23	2.28	
uranium-235	5,000	488	0.398	0.195	

Notes:

- ^a These limits are based on AEC *Regulatory Guide 1.86* (1974). Limits for removable surface activity are 20 percent of these values.
- These limits are based on 25 mrem/y, using Decontamination and Decommissioning Version 2 or *Regulatory Guide 1.86*, whichever is lower.
- ^c EPA PRGs for two future-use scenarios.
- The on-site and off-site laboratory will ensure that the MDA meets the listed release criteria by increasing sample size or counting time as necessary. The MDA is defined as the lowest net response level, in counts, that can be seen with a fixed level of certainty, customarily 95 percent. The MDA is calculated per sample by considering background counts, amount of sample used, and counting time.
- ^e Limit is 1 pCi/g above background; not to exceed 2 pCi/g total, per agreement with EPA.

Abbreviations and Acronyms:

AEC – Atomic Energy Commission

cm² – square centimeter

dpm – disintegration per minute

EPA – U.S. Environmental Protection Agency

MDA - minimum detectable activity

mrem/y – millirem per year

pCi/g – picocurie per gram

PRG - Preliminary Remediation Goal

TABLE 7-3: RADIOLOGICAL RISK RESULTS

Parcel B Amended Record of Decision, Hunters Point Shipyard, San Francisco, California

RESRAD-BUILD Results

Impacted Building	Radiological Risk ^{a,b}	Dose (millirem/year)
Building 103	1.48 x 10 ⁻⁶	7.02
Building 113	1.48 x 10 ⁻⁶	7.02
Building 113A	1.60 x 10 ⁻⁶	1.45
Building 130	1.60 x 10 ⁻⁶	1.45
Building 140	1.44 x 10 ⁻⁶	5.43
Building 146	1.16 x 10 ⁻⁶	1.20

Notes:

RESRAD Results

	Total Dose and Risk ^a							
Impacted Soil Area	Radiological Risk ^b	Dose (millirem/year)						
Building 142 Site	6.39 x 10 ⁻⁵	3.48						
Building 157 Site	8.90 x 10 ⁻⁵	4.86						
IR-07	4.51 x 10 ⁻⁵	3.27						
IR-18	4.51 x 10 ⁻⁵	3.27						

Incremental Dose and Risk^a

Impacted Soil Area	Radiological Risk ^b	Dose (millirem/year)		
Building 142 Site	4.35 x 10 ⁻⁵	2.39		
Building 157 Site	5.97 x 10 ⁻⁵	3.25		
IR-07	3.02 x 10 ⁻⁵	2.26		
IR-18	3.02 x 10 ⁻⁵	2.26		

Notes:

a Actual calculated dose and risk will be based on field measurements from the final status survey results.

Risk calculations for soil areas are based only on surface characterization and not on subsurface data. Risks consider only future risk based on radionuclides of concern at the release criteria. Risks will ultimately be based on the actual surface readings from the final status surveys.

Building 114 is not included because the site of former Building 114 has previously been surveyed and the final status survey documentation is pending submittal. Preliminarily, the site has been identified for "free release", and a request for concurrence will be submitted concurrently with the final status survey document.

IR Installation Restoration
RESRAD Residual radioactive (model)

RESRAD-BUILD Residual radioactive-building (model)

a Total risk and dose is equivalent to incremental risk and dose. Actual calculated dose and risk will be based on field measurements from the final status survey results. Incremental risk does not include risk from chemicals present at or below ambient levels; total risk includes risk from all chemical concentrations.

b Total excess lifetime cancer risk

b Total excess lifetime cancer risk



Base Realignment and Closure Program Management Office West 1455 Frazee Road, Suite 900 San Diego, CA 92108-4310

CTO No. 0006

FINAL ADDENDUM TO

RADIOLOGICAL ADDENDUM TO THE REVISED FEASIBILITY STUDY FOR PARCEL D

April 11, 2008

DCN: ECSD-2201-0006-0078

PARCEL D, HUNTERS POINT SHIPYARD SAN FRANCISCO, CALIFORNIA

with the source or transport medium does not occur, then the exposure pathway is incomplete and is not quantitatively evaluated for risk. Similarly, if human contact with an exposure medium is not possible, the exposure pathway is considered incomplete and is not evaluated.

For the potentially contaminated structure surfaces the exposure pathways are external radiation from contaminated surfaces and inhalation of re-suspended contaminated dust.

The exposure pathways for the impacted soils at Parcel D present a more complicated analysis. The complete pathways, based on the four criteria listed above, are external radiation, soil ingestion, inhalation, and drinking water ingestion (e.g., groundwater).

3.3 REMEDIATION GOALS

Remediation goals (RGs) are selected to achieve the RAOs. Table 3-2 identifies the RG for each ROC. The soil RGs were derived from the EPA preliminary remediation goals (PRGs) based on an increased lifetime cancer risk range of 10⁻⁶ to 10⁻⁴ for future use scenarios except for ²²⁶Ra, which is based on an agreement with EPA (DON, 2006). The RGs for building and equipment surfaces were based on the AEC Reg Guide 1.86 to meet the 25 millirem per year (mrem/y) dose limits of the Nuclear Regulatory Commission. The water RGs were derived from *Radionuclides Notice of Data Availability Technical Document*, (EPA, 2000) by comparing the limits from two criteria and using the most conservative limit.

3.3.1 Constituents of Potential Concern

The ROCs, ¹³⁷Cs, ⁶⁰Co, ³H, ²³²Th, ²³⁵U, ²³⁹Pu, ²²⁶Ra, and ⁹⁰Sr, have been associated with Parcel D radiologically-impacted buildings (NAVSEA, 2004). The ROCs, ¹³⁷Cs, ²³²Th, ²³⁹Pu, ²²⁶Ra, and ⁹⁰Sr have been associated with Parcel D radiologically-impacted soils (NAVSEA, 2004). This information is summarized in Table 2-2.

3.3.2 Media of Concern

The media of concern are the remaining radiologically-impacted structures (274, 351, 351A, 364, 365, 366/351B, 401, 408, 411, 813, and 819); soils of former building sites (313, 313A, 317, 322 and 383 area); soils in outdoor areas (Gun Mole Pier and NRDL Site on Mahan Street); trenches resulting from sewer and storm line removal; soils of remediated storm drains and sanitary sewers; and groundwater.

3.4 RISK EVALUATION BY REDEVELOPMENT BLOCK

The following sections list the redevelopment blocks and associated evaluation scenario. Figure 2-3 shows the redevelopment blocks, impacted areas and structures, and planned reuses. The radiologically-impacted sites in Parcel D will be identified in each redevelopment block section. Radiologically-impacted sewer and storm drains are present throughout Parcel D and will not be individually listed for a particular development block. The residential scenario provided the

TABLE 3-2 REMEDIATION GOALS

	Surfaces (dpm/100 cm ²)		Soil ^{c f}	_	
Radionuclide	Equipment, Waste ^a (dpm/100 cm ²)	Structures ^b (dpm/100 cm ²)	Construction Worker	Residential	Water ^f (pCi./L)
cesium-137	5,000	5,000	0.113	0.113	119
cobalt-60	5,000	5,000	0.0602	0.0361	100
plutonium-239	100	100	14.0	2.59	15
radium-226	100	100	1.0 ^d	1.0 ^d	5.0 ^e
strontium-90	1,000	1,000	10.8	0.331	8
thorium-232	1,000	36.5	19.0	1.69	15
hydrogen-3	5,000	5,000	4.23	2.28	20,000
uranium-235	5,000	488	0.398	0.195	30

Notes:

- These limits are based on AEC *Regulatory Guide 1.86* (1974). Limits for removable surface activity are 20 percent of these values.
- b These limits are based on 25 mrem/y, using DandD Version 2 or *Regulatory Guide 1.86*, whichever is lower.
- ^c EPA PRGs for two future-use scenarios.
- d Limit is 1 pCi/g above background; not to exceed 2 pCi/g total, per agreement with EPA.
- ^e Limit is for total radium concentration.
- Taken from *Revised Final Basewide Radiological Removal Action, Action Memorandum*. Hunters Point Shipyard, San Francisco, California. February 14.

Abbreviations and Acronyms:

AEC – Atomic Energy Commission

cm² – square centimeter

dpm – disintegration per minute

EPA – U.S. Environmental Protection Agency

MDA – minimum detectable activity

mrem/y – millirem per year

pCi/g – picocurie per gram

PRG – Preliminary Remediation Goal

TABLE A.4-1

REMEDIATION GOALS

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cobalt-60	5,000	5,000	0.0602	0.0361	
plutonium-239	100	24.7	14.0	2.59	
radium-226	100	100	1.0 ^e	1.0 ^e	
strontium-90	1,000	1,000	10.8	0.331	
thorium-232	1,000	36.5	2.7	1.69	
hydrogen-3	5,000	5,000	4.23	2.28	
uranium-235	5,000	488	0.398	0.195	

Notes:

- ^a These limits are based on AEC *Regulatory Guide 1.86* (1974). Limits for removable surface activity are 20 percent of these values.
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PRG - Preliminary Remediation Goal

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN II) Northern and Central California, Nevada, and Utah Contract No. N62474-94-D-7609

Contract Task Order No. 011

Prepared for

U.S. DEPARTMENT OF THE NAVY Naval Facilities Engineering Command Engineering Field Activity West San Bruno, California

PARCEL C REMEDIAL INVESTIGATION
DRAFT FINAL REPORT
HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

March 13, 1997

Prepared by

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James M. Sickles, PRC Project Manager

TABLE ES-1 HUMAN HEALTH RISK ASSESSMENT RESULTS AND RECOMMENDATIONS FOR SOIL HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

			- Hell 1887 (91) (51)			100	Reco	mmended	for FS Evalu	atione	
Site No.	Cancer Risk Range ^a	Cancer Risk ^b ≥ 1 x 10 ⁻⁶	⊞≥1 °	Lead ≥ Level of Concern d	Ecological Risk	Metals	VOCs	SVOCs	Pesticides	PCBs	TPHs
IR-27	Future Residential: 1 x 10 ⁻⁵ to 2 x 10 ⁻⁵	Yes	Yes	No	No terrestrial environmental/	x		Х			х
	Future Industrial: 9 x 10 ⁻⁷ to 2 x 10 ⁻⁶	Yes	No	No	ecological risk for soil						
IR-28	Future Residential: 1 x 10 ⁻⁸ to 6 x 10 ⁻²	Yes	Yes	Yes	No terrestrial environmental/	Х	Х	Х	X	Х	х
	Future Industrial: 2 x 10 ⁻¹⁰ to 7 x 10 ⁻⁵	Yes	No	Yes	ecological risk for soil				•		
IR-29	Future Residential: 1 x 10 ⁻⁸ to 9 x 10 ⁻³	Yes	Yes	Yes	No terrestrial environmental/	х		х	-	X	х
	Future Industrial: 1 x 10 ⁻⁹ to 2 x 10 ⁻⁴	Yes	Yes	Yes	ecological risk for soil						
IR-30	Future Residential: 2 x 10 ⁻⁷ to 2 x 10 ⁻⁴	Yes	Yes	Yes	No terrestrial environmental/	x				X	х
,	Future Industrial: 8 x 10 ⁻⁸ to 7 x 10 ⁻⁶	Yes	No	No	ecological risk for soil						
IR-45*	(f)	(f)	(f)	(f)	No terrestrial environmental/ ecological risk for soil	Х		Х			
IR-49*	(f)	(f)	(f)	(f)	No terrestrial environmental/ ecological risk for soil	Х		Х		Х	х
IR-50* (Storm Drain)	(f)	(f)	(f)	(f)	No terrestrial environmental/ ecological risk for soil	X					

TABLE ES-1 (Continued) HUMAN HEALTH RISK ASSESSMENT RESULTS AND RECOMMENDATIONS FOR SOIL HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

						61 E4	Recommended for FS Evaluation				
Site No.	Cancer Risk Range	Cancer Risk ^b ≥ 1 x 10 ⁻⁶	HI ≥ 1°	HI ≥ 1° Lead ≥ Level of Concern d	Ecological Risk	Metals	VOCs	SVOCs	Pesticides	PCBs	TPHs
IR-50* (Sanitary Sewer)	(f)	(f)	(f)	(f)	No terrestrial environmental/ ecological risk for soil	X					
IR-51*	(f)	(f)	(f)	(f)	No terrestrial environmental/ ecological risk for soil	X		Х		Х	X
IR-57	Future Residential: 6 x 10 ⁻⁸ to 4 x 10 ⁻⁴	Yes	Yes	Yes	No terrestrial environmental/	х		Х			х
	Future Industrial: 4 x 10 ⁻⁸ to 4 x 10 ⁻⁵	Yes	No	No	ecological risk for soil				•		
IR-58	Future Residential: 8 x 10 ⁻⁷ to 9 x 10 ⁻⁴	Yes	Yes	Yes	No terrestrial environmental/	Х		Х	Х	х	х
	Future Industrial: 2 x 10 ⁻⁸ to 1 x 10 ⁻⁵	Yes	No	No	ecological risk for soil						
IR-63	Future Residential: 5 x 10 ⁻⁵ to 7 x 10 ⁻⁵	Yes	Yes	No	No terrestrial environmental/	х					
	Future Industrial: 1 x 10 ⁻⁶ to 5 x 10 ⁻⁶	Yes	No	No	ecological risk for soil						
IR-64	Future Residential: 7 x 10 ⁻⁸ to 2 x 10 ⁻⁴	Yes	Yes	No	No terrestrial environmental/	Х					
	Future Industrial: 1 x 10 ⁻⁶ to 2 x 10 ⁻⁵	Yes	No	No	ecological risk for soil						





Final

Feasibility Study Report for Parcel C

Hunters Point Shipyard San Francisco, California

July 31, 2008

Prepared for:

Base Realignment and Closure Program Management Office West San Diego, California

Prepared by:

SulTech, A Joint Venture of Sullivan Consulting Group and Tetra Tech EM Inc. 1230 Columbia Street, Suite 1000 San Diego, California 92101

Prepared under:

Naval Facilities Engineering Command Contract Number N68711-03-D-5104 Contract Task Order 018

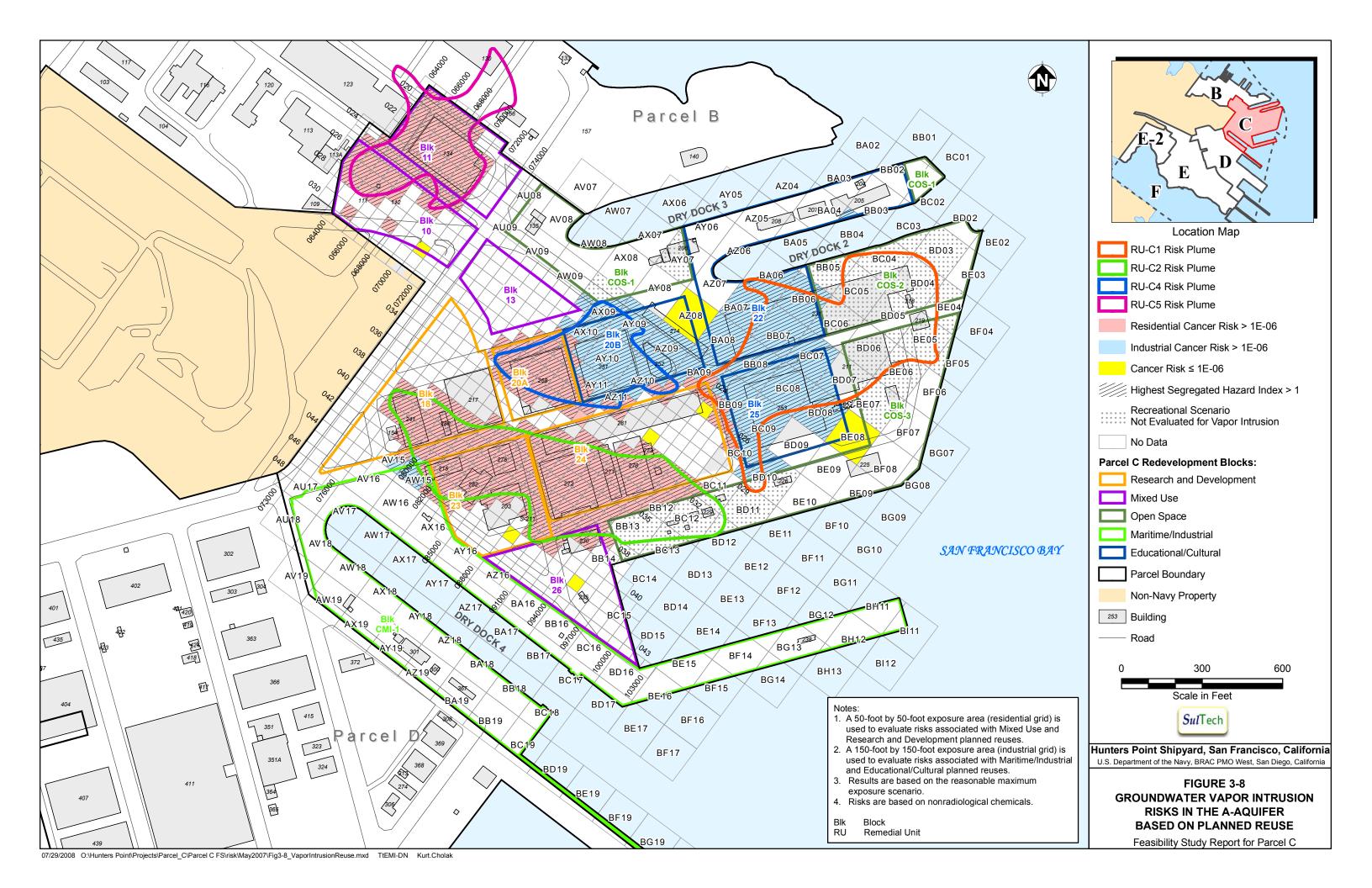


TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS)

Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
10	MU	063024	9E-05	6E+00	2E+00
10	MU	063027	9E-05	8E+00	3E+00
10	MU	063028		<1	<1
10	MU	064024	2E-04	9E+00	4E+00
10	MU	064026	3E-07	<1	<1
10	MU	064027	7E-08	<1	<1
10	MU	064028	1E-05	2E+00	<1
10	MU	064029	5E-05	2E+00	<1
10	MU	065026	1E-04	6E+00	2E+00
10	MU	065027	4E-06	<1	<1
10	MU	065028	1E-04	1E+01	5E+00
10	MU	065029	6E-05	1E+01	6E+00
10	MU	066025	9E-05	2E+00	<1
10	MU	066026	1E-04	1E+01	4E+00
10	MU	066027	2E-04	5E+00	<1
10	MU	066028	9E-05	1E+01	7E+00
10	MU	067025	9E-05	1E+01	3E+00
10	MU	067026	2E-04	7E+00	2E+00
10	MU	067027	7E-05	1E+01	6E+00
10	MU	067028	9E-05	1E+01	5E+00
10	MU	068025	9E-05	1E+01	4E+00
10	MU	068026	2E-04	1E+01	7E+00
10	MU	068027	8E-05	1E+01	6E+00
10	MU	069025	9E-05	8E+00	2E+00
10	MU	069026	5E-05	2E+01	9E+00
10	MU	069027	6E-05	1E+01	5E+00
10	MU	070025	1E-04	2E+01	6E+00
10	MU	070026	3E-07	1E+01	6E+00
11	MU	064020	4E-08	<1	<1
11	MU	064023	9E-05	5E+00	<1
11	MU	065020	5E-07	<1	<1
11	MU	065021	1E-04	1E+01	4E+00
11	MU	065022	3E-04	3E+00	<1
11	MU	065023	1E-04	3E+00	<1
11	MU	065024	1E-04	7E+00	2E+00
11	MU	066020	9E-05	2E+00	<1
11	MU	066021	1E-06	2E+00	<1
11	MU	066022	2E-04	1E+01	3E+00
11	MU	066023	1E-04	1E+01	4E+00
11	MU	066024	1E-04	6E+00	5E+00
11	MU	067019	4E-06	<1	<1
11	MU	067020	9E-05	6E+00	5E+00
11	MU	067021	7E-06	<1	<1

TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
11	MU	067022	2E-04	6E+00	<1
11	MU	067023	2E-07	2E+00	2E+00
11	MU	067024	1E-04	1E+01	3E+00
11	MU	068019	7E-05	5E+00	2E+00
11	MU	068020	9E-05	4E+00	3E+00
11	MU	068022	8E-06	<1	<1
11	MU	068024	1E-04	9E+00	3E+00
11	MU	069022	6E-05	1E+01	6E+00
11	MU	069023	3E-08	<1	<1
11	MU	069024	3E-05	1E+01	7E+00
11	MU	070024	1E-04	7E+00	2E+00
11	MU	071019	1E-07	7E+00	2E+00
11	MU	071024	1E-04	6E+00	<1
13	MU	075027	1E-04	1E+01	6E+00
13	MU	077028	6E-05	1E+01	3E+00
13	MU	078027		<1	<1
13	MU	078028	5E-05	4E+00	<1
13	MU	078029		<1	<1
13	MU	079027	8E-05	7E+00	4E+00
13	MU	079029	4E-05	1E+01	8E+00
13	MU	079030	3E-05	2E+01	5E+00
13	MU	080025	1E-04	6E+00	3E+00
13	MU	080026	9E-05	1E+01	4E+00
13	MU	080029	4E-09	<1	<1
13	MU	081027		a	 a
13	MU	082026	2E-04	7E+00	2E+00
13	MU	082027	1E-04	8E+00	2E+00
18	RD	075039	4E-08	<1	<1
18	RD	075043	2E-04	8E+00	2E+00
18	RD	075044	2E-08	3E+00	<1
18	RD	076034	8E-05	7E+00	2E+00
18	RD	076038	2E-04	1E+01	3E+00
18	RD	076039	1E-05	<1	<1
18	RD	076040	9E-07	<u>-</u> <1	<u>-</u> <1
18	RD	076043	8E-05	5E+00	<u>-</u> <1
18	RD	077035	6E-05	1E+01	3E+00
18	RD	077037	3E-04	8E+00	2E+00
18	RD	077038	2E-04	1E+01	3E+00
18	RD	077039	1E-04	7E+00	2E+00
18	RD	077040	2E-04	2E+01	1E+01
18	RD	078032	1E-05	1E+01	6E+00
18	RD	078036	4E-04	1E+01	5E+00
18	RD	078037	2E-04	1E+01	4E+00





Base Realignment and Closure Program Management Office West 1455 Frazee Road, Suite 900 San Diego, California 92108-4310

CONTRACT No. N62473-10-D-0809 CTO No. 0007

FINAL FINAL STATUS SURVEY RESULTS March 2013

DCN: RMAC-0809-0007-0100

FORMER BUILDING 507 SITE HUNTERS POINT NAVAL SHIPYARD SAN FRANCISCO, CALIFORNIA To provide the best possible estimation of dose and risk for the residual activity at the Former Building 507 Site, the DON used the most current version of RESRAD for calculations.

3.2.3 Wide-Area Derived Concentration Guideline Level

The wide-area DCGL (DCGL_w) is the average concentration across the site that is equivalent to the release criterion, based on dose or risk. The DCGL_w for each ROC is presented in Table 3-1.

TABLE 3-1
RELEASE CRITERIA FOR RADIONUCLIDES OF CONCERN

Radionuclide	Structures Total Surface Activity Release Criteria (dpm/100 cm ²)	Structures Removable Surface Activity Release Criteria (dpm/100 cm ²)	Soils Release Criteria (pCi/g)
Cesium-137	5,000	1,000	0.113
Plutonium-239	100	20	2.59
Radium-226	100	20	1.0 ^a
Strontium-90	1,000	200	0.331

Notes:

Abbreviations and Acronyms:

cm² – square centimeter

dpm – disintegrations per minute

EPA – U.S. Environmental Protection Agency

pCi/g – picocuries per gram

3.3 DIRECT APPLICATION OF DCGLS

In the simplest case, the DCGLs may be applied directly to survey data to demonstrate compliance. This involves assessing the activity levels and comparing measured values to the appropriate DCGL.

3.4 INVESTIGATION LEVELS

Investigation levels are specific levels of radioactivity used to indicate when additional investigation may be necessary. Investigation levels also serve as a quality control check. For example, in addition to indicating potential contamination, a measurement that exceeds the investigation level may indicate that the survey unit was improperly classified or may indicate a failing instrument.

When determining an investigation level using a statistically based parameter (e.g., standard deviation), the following may be considered: survey objectives, underlying radionuclide

^a Limit is 1 pCi/g above background, per agreement with EPA.

3.2.1 Use of DCGLs for Sites with Multiple Radionuclides

Typically, each radionuclide DCGL corresponds to the release criterion (e.g., regulatory limit in terms of dose or risk). However, in the presence of multiple radionuclides, the total of the DCGLs for all radionuclides would exceed the release criterion. In this case, the individual DCGLs need to be adjusted to account for the presence of multiple radionuclides contributing to the total dose. One method for adjusting the DCGLs includes the use of the unity rule and development of a gross activity DCGL for surface activity to adjust the individual radionuclide DCGLs.

The unity rule, represented in the expression below, is satisfied when radionuclide mixtures yield a combined fractional concentration limit that is less than or equal to 1:

$$\frac{C_1}{DCGL_1} + \frac{C_2}{DCGL_2} + \dots \frac{C_i}{DCGL_i} \le 1$$

Where:

 C_i = concentration of radionuclide "i" $DCGL_i$ = DCGL of radionuclide "i"

In the event of a mean concentration less than zero, the value used in calculations was set at zero. The following equation, using the mean concentrations of 0.007 pCi/g for ¹³⁷Cs, 0.000 pCi/g for ²³⁹Pu, 0.425 pCi/g for ²²⁶Ra, and 0.000 pCi/g for ⁹⁰Sr from Survey Unit 1, demonstrates that the unity rule is satisfied:

$$\frac{0.007 \ pCi/g}{0.113 \ pCi/g}^{137}Cs + \frac{0.000 \ pCi/g}{2.59 \ pCi/g}^{239}Pu + \frac{0.425 \ pCi/g}{1.375 \ pCi/g}^{226}Ra + \frac{0.000 \ pCi/g}{0.331 \ pCi/g}^{90}Sr = 0.375$$

3.2.2 DCGL Modeling

RMAC-0809-0007-0100 Fn FSS Bldg 507.doc

Radionuclide-specific release criteria, referred to as DCGLs, were obtained from the AM and were then modeled using RESRAD Version 6.3 (a previous version) based on the 25 mrem/y total effective dose equivalent or were otherwise risk-based; the final doses using the risk-based release criterion for HPNS are all less than this 25 mrem/y release criterion. Following discussions with the EPA and as a matter of policy at HPNS, the DON and the Radiological Affairs Support Office (RASO) will also ensure that the resulting ELCR falls within the EPA risk management range of 10⁻⁶ to 10⁻⁴ prior to recommending a site or building for unrestricted release. This ELCR is more conservative than the NRC dose-based unrestricted release criterion of 25 mrem/y. Additionally, lead-210 was modeled at secular equilibrium with ²²⁶Ra activity to ensure that all possible exposures were considered. The original model used in the AM for the critical group was based on default RESRAD Version 6.3 parameters.





Final

Addendum 1 to the Remedial Action Completion Report for Soil Hotspot Locations at Parcels B, D-1, and G and Soil Stockpiles at Parcel D-1 and G

Hunters Point Naval Shipyard San Francisco, California

April 2014

Prepared for:

Department of the Navy Base Realignment and Closure Program Management Office West San Diego, California

Prepared by:

Engineering/Remediation Resources Group, Inc. 115 Sansome Street, Suite 200 San Francisco, California 94104

Prepared under

Naval Facilities Engineering Command Southwest Contract No. N62473-09-D-2608 Contract Task Order 0004 Document Control No. ERRG-2608-0004-0004.A1/F

	DIRT SHOP, INC	LOAD & WEIG	HT SPREADSHEET		
Project:	US Navy Hunters Point I	Naval Shipyard	- Morrell St. @ E.	St. (parcel D-1)	
Client:	ERRG				
Service:	Transport & disposal no	n-hazardous so	oil w/ non-friable	serpentine to Hay R	d. Landfill
			US Navy	Waste Weight	Waste Weight
Load #	Date of Offhaul	Manifest #	Tracking #	per load (in tons)	per day (in tons)
1	8/20/2013	002978	14818	33.95	
2	8/20/2013	002979	14819	28.73	
3	8/20/2013	002980	14820	16.72	
4	8/20/2013	002981	14821	16.98	
5	8/20/2013	002982	14822	29.25	
6	8/20/2013	002983	14823	<u>25.47</u>	151.1
Total to	ns of non-haz soil w/ non-	friable serp. of	fhauled 8/20/13:	151.1	
Service:	Transport and disposal	non-hazardous	general debris to	Hay Rd. Landfill	
			US Navy	Waste Weight	Waste Weight
Load #	Date of Offhaul	Manifest #	Tracking #	per load (in tons)	per day (in tons)
1	8/20/2013	002989	14829	13.4	13.4
	Total tons of non-haz ge	eneral debris of	fhauled 8/20/13:	13.4	

NON-HAZARDOUS WASTE MANIFEST	1, Generator ID Number	.	2. Page 1		ency Response	Phone	4. Waste T	racking Num	iber (002978
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	US Navy BRAC	C PMO-W (Hunters I e Palms, Ste. 161	Paint)	, н	lunters Pt N	avel Ship	yard, Morr	el St @ E	St St	
/	Sen Francisco	CA 94130 USA			len Francis	0, CA 9	4102 USA			1.)
Generator's Phone:415-74							U.S. EPA ID		PRG	<u>5-1) </u>
	Sancher	Trans	no-	In	c		CAR	2000	17	5828
. Transporter 2 Company Na	me		LECTIVITY OF				U.S. EPA ID	Number		
	-10% A11						U.S. EPA ID	Number		
b. Designated Facility Name a	Recology F 6426 Hay	lay Road Landill Rd							D982	042475
	Vecaville, I	CA 95687 USA			e Hariago de la composición dela composición de la composición de la composición dela composición dela composición dela composición dela composición de la composición dela composición d					
acility's Phone: 707-678	-4718							1		
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RECOLOGY HAY ROAD RECOLOGY HAY ROAD

6426 Hay Road Vacaville, CA 95687

Phone: (707) -678-4718 Truck: 9F04371

Customer: 52340/DIRT SHOP, INC.

Profile: 5848/US Navy Brac, PMO-W Hunt

Date: 8/20/2013

Time: 11:18:28 - 11:33:19

Gross: 98560 LBS Scale 30660 LBS Scale Tares

Net: 67900 LBS

Ticket: 1239146

Scale: H2

Origin

Materials & Services

Quantity

SFR/San Francisco

SOILC/Soil Contaminated

Terri Wilson

WMSTR4-LO 9/09 Printed on recycled paper

(9249)4819

NON-HAZARDOUS	Generator ID Number		2. Page 1 of	3. Emergency Respon		4. Waste T		0000
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ility's Phone: 707-878-4				10.00	ntainers	11. Total	12. Unit	
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RECOLOGY HAY ROAD RECOLOGY HAY ROAD 6426 Hay Road Vacaville, CA 95687 Phone: (707)-678-4718 Truck: 9249 Customer: 52340/DIRT SHOP, INC.

Profile: 5848/US Navy Brac, PMO-W Hund

Ticket: 1239140 Date: 8/26/2013

Time: 11:11:53 - 11:24:52

Gross: 91400 LBS_Scale Tare: 33940 LBS Scale

Net: 57460 LBS

Scale: H2

Origin

SFR/San Francisco

Materials & Services

Quantity

SDILC/9011 Contaminated

WASTE ZERO

3+,98

Joseph Snyder

WMSTR4-LO-9/09 Printed on recycled paper

NON-HAZARDOUS	1. Generafor ID Number	2. Page 1 of 3.	. Emergency Respon	se Phone	4. Waste T	racking Numbe	002980
WASTE MANIFEST Generator's Name and Mail	CA0001019694	1 4	15-552-1818 enerator's Site Addre	es (if different th	an mailing add	ace)	002000
Generator's Name and Mail	US Navy BRAC PMO-V						
	1 Avenue of the Palms, San Francisco, CA 94	Ste 161 130 USA	Hunters Pt San Franci	isco, CA 9	yard, Morr 4102 USA	91 St @ E S	x
enerator's Phone: 415-74 Transporter 1 Company Na	me .			- 1	U.S. EPA ID	Number	210110
	18 Triking				1 (2	RO	001847
Transporter 2 Company Na	me		¥		U.S. EPA ID	Number	,
Designated Facility Name a	nd Site Address Recology Hay Road	d Landfill			U.S. EPA ID	12 F 2	
8	6426 Hay Rd. Vacaville, CA 9668					CAD	982042475
acility's Phone: 707-678-	4718		1		J	Towns F	
9. Waste Shipping Nan	ne and Description	A 1841	No.	ntainers Type	11. Total Quantity	12. Unit Wt./Vol.	
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RECOLOGY HAY ROAD RECOLOGY HAY ROAD 6426 Hay Road Vacaville, CA 95687 Phone: (707)-678-4718 Truck: 5463 Customer: 52340/DIRT SHOP, INC.

Hunt

Ticket: 1239096

Date: 8/20/2013

Time: 10:28:34 - 10:28:50

Oross: 64540 LBS Scale Tare: 31100 LBS PreTare

Met: 33440 LBS

Scale: H1

Profile: 5848/US Navy Brac, PMO-W Hunt

Origin

SFR/San Francisco

Materials & Services

SULLEZSoil Contaminated

Quantity

16.72 Tons

WASTE ZERO

Joseph Snyder

VMSTR4-LO 9/09 Printed on recycled paper

H 14821

NON-HAZARDOUS	Generator ID Number			3. Emergi	ency Respons	e Phone	4. Waste I	racking Number		2004
WASTE MANIFEST Generator's Name and Maili	CA0001019694	10 10 10 10 10 10 10 10 10 10 10 10 10 1	1 3	415-58 Generator	52-1818 's Site Addres	s (if different th	han mailing addr	ess)	001	2981
	US Navy BRAC PMC 1 Avenue of the Pain San Francisco, CA S	ms, Ste. 161	Point)	н	unters Pt	Naval Ship	yard, Morr 4102 USA	el St Q E	5t	
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Designated Facility Name a	nd Site Address	28.5/ 18.0/2000	*				U.S. EPA ID	Number		
*	Recology Hay Ri 6426 Hay Rd. Vacaville, CA 95					y y		CAE	98204247	5
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RECOLDBY HAY ROAD

RECOLDBY HAY ROAD

6426 Hay Road Vacaville, CA 95687

Phone: (707) -678-4718

Truck: 3993

Customer: 52340/DIRT SHOP, INC.

)-W **Hent**

Ticket: 1239095

Date: 8/20/2013

Time: 10:27:12 - 10:27:18

Gross: 64240 LBS Scale Tare: 30280 LBS PreTare

Net: 33960 LBS

Scale: H1

Profile: 5848/US Navy Brac, PMO-W Hunt

Origin

SFR/San Francisco

Ma**terial**s & Services

SOILC/Soil Contaminated

Quantity

16.99 Tons

EMASTIEUZERO

Joseph Snyder

WMSTR4-LO 9/09 S Printed on recycled paper

14822

NON-HAZARDOUS	1. Generator ID Number	2. Page 1 of	3. Emergency	Response	Phone	4. Waste T	racking Num	ber 00298
WASTE MANIFEST	CA0001019694	13	415-552-1	818				00230
Generator's Name and Mail	US Navy BRAC PMO-W (h 1 Avenue of the Paims, Sh San Francisco, CA 94130	a. 161	Hunti	ers Pt N	aval Ship	an mailing addr yard, Morro 4102 USA		E St.
enerator's Phone: 4.15-74 Transporter 1 Company Na						U.S. EPA ID	Number	
Transportor T Sympany Tta	18 Truking							184 788
Transporter 2 Company Na				_		U.S. EPA ID		
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Designated Facility Name.a	6426 Hay Road Li 6426 Hay Rd. Vacaville, CA 95687 L				ie z	U.S. EPA ID		ND982042475
cility's Phone: 707-878	7/10			10. Conta	inore		1	
9. Waste Shipping Nar	me and Description	120	-	No.	Type	11. Total Quantity	12. Unit Wt./Vol.	12
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RECOLOGY HAY ROAD RECOLOGY HAY ROAD

6426 Hay Road Vacaville, CA 95687

Phone: (707)-678-4718 Truck: 9249

Customer: 52340/DIRT SHOP, INC.

License: TM Ticket: 1239338

Date: 8/20/2013

Time: 15:38:40 - 15:38:56

Gross: 92440 LBS Scale

Tares 33940 LBS PreTare

Netz 58500 LBS

Scale: H1

Profile: 5848/US Navy Brac, PMO-W Hunt

Origin

SFR/San Francisco

Makerials & Services

SUILC/Soil Contaminated

Quantity

29.25 Tons

STE ZERO

Joseph Snyder

VMSTR4-LO 9/09 Printed on recycled paper

9 F QV 83/

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RECOLOGY HAY ROAD RECOLOGY HAY ROAD

6426 Hay Road Vacaville, CA 95687

Phone: (707)-678-4718 Truck: 9F04371

Customer: 52340/DIRT SHOP, INC.

Profile: 5848/US Navy Brac, PMO-W Hunt

Ticket: 1239343 Date: 8/20/2013

Time: 15:27:48 - 15:44:39

Gross: 81260 LBS Scale

Tare: 30320 LBS Scale

Net: 50940 LBS

Scale: H2

Origin

Materials & Services

Quantity

SFR/San Francisco

SDILC/Soil Contaminated

25. 47 Tons

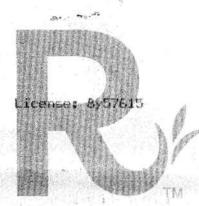
Joseph Snyder

WMSTR4-LO 9/09 Printed on recycled paper

7928 # 14829

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RECOLOGY HAY ROAD
RECOLOGY HAY ROAD
6426 Hay Road Vacaville, CA 95687
Phone: (707)-678-4718
Truck: 7929
Customer: 52340/DIRT SHOP, INC.



Ticket: 1239190

Date: 8/20/2013

Time: 12:10:13 - 12:12:02

Gross: 59040 LBS Scale Tare: 32240 LBS Prefare

Net: 26800 LBS

Scale: Hi

Origin

SFR/San Francisco

Ma**teri**als & Services

GEND/General Debris

Quantity

13, 40 Tons

WASTE ZERO

Terri Wilson

WMSTR4-LO-9/09 · • Printed on recycled paper ·





Final

Record of Decision for Parcel E-2

Hunters Point Naval Shipyard San Francisco, California

November 2012

Prepared by:

Department of the Navy Base Realignment and Closure Program Management Office West 1455 Frazee Road, Suite 900 San Diego, California 92108

Prepared under:

Naval Facilities Engineering Command Contract Number N68711-05-C-6011

Section 2 Decision Summary

Table 6. Remediation Goals for Radionuclides in Soil and Sediment

	Exposure Scenario							
Radionuclide of Concern	Outdoor Worker (pCi/g)	Residenta (pCi/g)						
Cesium-137	0.113	0.113						
Cobalt-60	0.252 ^b	0.252 ^b						
Radium-226	1.0°	1.0°						
Strontium-90	10.8	0.331						

Notes: The basis (risk-based) for the remediation goals is presented in Sections 7 and 9 of the radiological addendum.

EPA = U.S. Environmental Protection Agency pCi/g = picocuries per gram RD = remedial design RODs = Records of Decision

a = Residential use is not planned for Parcel E-2, but residential goals are proposed as an additional level of protection.

b = Remediation goal for cobalt-60 was revised to support efficient laboratory gamma spectroscopy analysis of soil samples. This revised remediation goal maintains morbidity risks within the EPA-defined acceptable range and permits an exposure level that does not increase the risk of cancer from a potential exposure to cobalt-60.

c = Remediation goal is 1 pCi/g above background per agreement with EPA (established in "Final Basewide Radiological Removal Action, Action Memorandum – Revision 2006, Hunters Point Shipyard, San Francisco, California," dated April 21, 2006), and is consistent with the radiological-related remedies selected in the RODs for Parcels B, G, and D-1 and UC-1. The radium-226 background level for surface soil is 0.633 pCi/g. The radium-226 background level for storm drain and sewer lines is 0.485 pCi/g. The background levels for radium-226 may be reevaluated in the Parcel E-2 RD and are subject to regulatory agency approval.



Final

Feasibility Study Report for Parcel F

Hunters Point Shipyard San Francisco, California

April 30, 2008

Prepared for:

Base Realignment and Closure Program Management Office West San Diego, California

Prepared by:

Barajas & Associates, Inc. 839 W. Harbor Drive, Suite 1 San Diego, California 92101

Prepared under:

Naval Facilities Engineering Command Contract Number N68711-03-D-5106 Contract Task Order 004 Under federal standards, PCBs are not regulated as a hazardous substance under RCRA, but mercury is. As a result, removed sediment must be managed as RCRA hazardous waste if the concentration of mercury exceeds the TCLP requirements when sediments from Parcel F are contaminated with both PCBs and mercury. Off-site disposal facilities must meet the requirement of the CERCLA Off-site Rule.

Off-Site Class II or Class III Landfill Disposal. Sediment waste that would not require Class I landfill disposal may be sent to either a Class II or a Class III landfill. Class II units are more rigorous than Class III because they are constructed to isolate hazardous waste from state waters. The Class II unit is a permitted Subtitle D cell designed with a synthetic liner and leachate collection system. Class III disposal facilities are constructed to separate nonhazardous solid waste and from waters of the State of California.

Designated wastes can be disposed of at Class II landfills that have been approved for containment of the type of waste stream to be disposed of (Cal. Code Regs. tit. 27, § 20210). Designated waste is defined as "nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan" (California Water Code § 13173).

Nonhazardous and nondesignated wastes can be disposed of at Class III landfills that have been approved for the specific type of waste stream to be disposed of. Certain contaminated soils, sludge, and industrial wastes can also be disposed of at Class III landfills.

It is anticipated that most material removed from Parcel F would be considered designated waste for disposal at a Class II facility or as alternative daily cover, although some material may be designated as waste for a Class III facility.

3.8.1.1 Effectiveness

Landfill disposal would effectively reduce the risk of exposure to chemicals in sediment at Parcel F. Disposing of contaminated sediments at an off-site landfill removes the chemicals from the aquatic setting, where they could be a hazard to ecological receptors. The contaminated sediment is placed in a landfill, eliminating the pathway from sediment to the environment. Landfill sites are readily available, and costs are comparable to treatment technologies. Therefore, disposal at a Class I, Class II or III landfill would be an effective option.

3.8.1.2 Implementability

Implementability of landfill disposal depends on locating a landfill with adequate space for the contaminated sediments and with the appropriate permits and requirements to accept the contaminated sediments. Class I landfills identified for disposal of the contaminated sediments from Parcel F include the Laidlaw facility in Buttonwillow, California, and Chemical Waste

Management's Kettleman Hills facility in Kettleman City, California. Class II landfills identified for disposal of the contaminated sediments from Parcel F include Altamont Landfill (Livermore, California), Hayroad Landfill (Vacaville, California), and Forward, Inc./Allied Waste (Manteca, California).

Disposal would be easily implemented once a landfill is found to meet the appropriate requirements. Dewatering, transportation, stabilization, and disposal of contaminated sediments in landfills have been widely conducted.

3.8.1.3 Cost

The cost of the off-site Class I landfill process option depends on several factors, such as (1) the trucking distance between HPS and the Class I landfill, and (2) the volume of waste that would require disposal. Out-of-state landfills may offer reduced disposal fees and taxes, as well as the use of rail transportation rather than trucking. Capital costs are high for Class I landfill disposal, but O&M costs are not associated with this process option.

The only treatment required for contaminated sediment to be disposed of in a Class II landfill is dewatering, so the total cost of disposal would vary, depending on the amount of dewatering required and the distance and type of transportation. Aside from dewatering, costs for disposal of contaminated sediments in a Class II landfill would be moderate.

3.8.1.4 Screening Results

Disposal at a Class I, II, or III landfill must be conducted in conjunction with other process options; thus, they will be considered with excavation and dredging and are retained for further evaluation in this FS Report.

3.8.2 On-Site Disposal and Reuse

On-site disposal and reuse would consist of placement of the removed sediments in the Parcel E-2 landfill, located just north of Area IX/X. Given the expected low concentrations of chemicals in the sediment, it may be possible to use the sediment as landfill cover. The sediment would first be dewatered, then transported and spread and compacted in the existing landfill. Characterization of the sediments would be required prior to placement in the landfill, as discussed in Section 3.7.1.

3.8.2.1 Effectiveness

On-site disposal would effectively reduce the risk of exposure to chemicals in sediment at Parcel F. Disposing of contaminated sediments at an on-site landfill removes the chemicals from the aquatic setting, where they could be a hazard to wildlife. The contaminated sediment would be placed in the Parcel E-2 landfill, eliminating the pathway from sediment to the environment. The landfill is immediately adjacent to Area IX/X and less than 1 mile from Area III. Therefore, disposal at the Parcel E-2 landfill would be an effective option.







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Land Disposal Program

WASTES ALLOWED FOR DISCHARGE AT DISPOSAL FACILITIES

This page contains updated lists provided by the Regional Water Quality Control Boards (RWQCBs) of open, commercial Class I, II, and III landfills and the types of wastes accepted at each. It includes a partial listing of the other types of open, commercial disposal sites, such as surface impoundments and land treatment units. Class I sites may accept hazardous and nonhazardous wastes; Class II sites may accept designated. The wastes accepted at each facility are indicated by a "+" in the space. If the space is blank, this waste is not accepted at that facility. The waste categories shown on the list are in addition to the typical wastes accepted by these facilities. "Unclassified" sites accept inert wastes only.

The lists include the facility contact's telephone number. It is imperative you contact the facility prior to arriving with waste. The landfill operator may choose not to accept waste even if permitted in Waste Discharge Requirements. Also note that the Solid Waste Facility Permit issued by the local enforcement agency and the Integrated Waste Management Board may not allow discharge of certain wastes.

If you have any other questions, please contact the facility or the appropriate RWQCB.

Region 1 - Waste Acceptance List (2011 update)

Region 2 - Waste Acceptance List (2014 update)

Region 3 - Waste Acceptance List (2014 update)

Region 4 - Waste Acceptance List (2014 update)

Region 5 - Waste Acceptance List (updated on (2011 update)

Region 6 - Waste Acceptance List (2014 update)

Region 7 - Waste Acceptance List (2002 update)

Region 8 - Waste Acceptance List (2014 update)

Region 9 - Waste Acceptance List (2014 update)

 Decisions Pending and Opportunities for Public Participation

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Dorformanco

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD (5) WASTE ACCEPTANCE LIST

| S = SACRAMENTO OFFICE | Sacramento Watershed -- Steve Rosenbaum (916-464-4631) | San Joaquin Watershed -- Victor Izzo (916-464-4626) | Landfills -- Dane Johnson (559-445-5525) | Surface Impoundments -- Sheldton Gray (559-445-5508) | R = REDDING OFFICE | Karen Clementsen (530-224-4852)

FACILITY NAME	ш	FACILITY	COUNTY	CLASS	TYPE	ASB-	AUTO	DRILLING	WASTE	ASH	SEPTAGE	TREATED	DESIG-	DESIG-	SOILS	PESTICIDE	COMF
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	OFFICE	PHONE				ESTOS		MUDS	WATER/		0202	WOOD		NATED		CONTAINERS	LIN
	빌	NUMBER					0		SLUDGE						PETROLEUM		CEL
ALTAMONT SANITARY LANDFILL		925-449-6349	ALAMEDA	II. III	LF. SI	+	+		+	+		+	+	+	+		
ALTURAS LANDFILL		530-233-6403		III	LF	-					+	-	-	-	·		
ANDERSON SOLID WASTE INC.	R	530-347-5236		III	LF	+			+	+		+					
AQUA CLEAR FARMS, INC	s	707-374-2559		II.	LF. SI			+									
AVENAL LANDFILL	F	559-386-5766		III	LF			<u> </u>									
BILLIE WRIGHT LANDFILL	F	209-385-7388		III	LF												
BLACK BUTTE		530-842-8250		III	LF												
CHEM WASTE MANAGEMENT - KETTLEMAN	F	559-386-6288	KINGS		LF	+	+	+	+	+	+		+	+	+	+	
CHEM WASTE MANAGEMENT - KETTLEMAN	F	559-386-6288	KINGS		SI			+	+		+			+			
CHESTER LANDFILL	R	530-283-6268	PLUMAS	III	LF												
CLOVIS CITY LANDFILL	F	559-324-2614	FRESNO	III	LF												
COLUSA COUNTY NO 2, STONYFORD	S	916-458-5186		III	LF			Ì									
EAST LAKE LANDFILL		707-262-1760		III	LF	+		Ì	+			+		+			
FINK ROAD LANDFILL (LF-2)		209-837-4800		III	LF, SI	+		Ì									
FINK ROAD LANDFILL (LF-3)		209-837-4800		II	LF, SI			Ì		+							
FOOTHILL SANITARY LANDFILL			SAN JOAQUIN	III	LF, LT			Ì									
FORWARD, INC				II, III	LF, SI	+	+	Ì	+	+	+	+	+	+	+		
FRESNO COUNTY - AMERICAN AVENUE	F	559-262-4295	FRESNO	ill	LF				+								
FULTON RECLAMATION	S	530-865-3680	GLENN	III	SA			+									
GLENN COUNTY LANDFILL	S	530-934-6530	GLENN	III	LF												
GOPHER HILL	R	530-283-6268	PLUMAS	III	LF												
H.M. HOLLOWAY GYPSUM MINE RECL.	F	661-797-2320	KERN	II, III	LF		+	+		+			+				
HAY ROAD LANDFILL	S	707-678-4718	SOLANO	II, III	LF, LT	+				+		+	+		+		
HIGHWAY 59 LANDFILL	F	209-285-7388	MERCED	III	LF				+			+					
KERN COUNTY - BAKERFIELD METRO	F	661-862-8900	KERN	III	LF	+	+		+			+					
KERN COUNTY - SHAFTER-WASCO LANDFIL	F	661-862-8900	KERN	III	LF				+								•
KERN COUNTY - TAFT LANDFILL	F	661-862-8900	KERN	III	LF												
L & D LANDFILL	S	916-383-9420	SACRAMENTO	II, III	LF	+											•
MADERA COUNTY - FAIRMEAD LANDFILL	F	559-665-3099	MADERA	III	LF					+							
NEAL ROAD	R	530-538-7681	BUTTE	II, III	LF, SI	+			+		+	+					
NORTH COUNTY LANDFILL	S	209-468-3066	SAN JOAQUIN	III	LF							+					
OSTROM ROAD LANDFILL		530-743-6321		ll	LF, SI, LT	+			+		+	+	+		+		
PORTOLA LANDFILL		530-283-6268		III	LF												
RED BLUFF LANDFILL	R	530-528-1102	TEHAMA	III	LF												
ROCK CREEK LANDFILL	S	209-754-6403		ll	LF				+	+	+	+	+	+	+		
SACRAMENTO COUNTY - KIEFER LANDFILL	S	916-481-1816	SACRAMENTO	III	LF	+						+				+	
SAFETY-KLEEN - BUTTONWILLOW		800-544-7199		I	LF, SI			+	+				+	+	+		
SANIFILL INC McKITTRICK SITE		661-762-7366		ll	LF, SI			+	+		+		+	+	+		
SIERRA COUNTY LOYALTON LANDFILL	S		SIERRA	III	LF					+							
TULARE COUNTY - TEAPOT DOME SITE	F		TULARE	III	LF					+							
TULARE COUNTY - VISALIA LANDFILL			TULARE	III	LF					+							
TODA INCE COCKET		559-733-6291		III	LF					+							
UC DAVIS SANITARY LANDFILL	_	530-754-5977		III	LF												
WEST CENTRAL LANDFILL		530-225-5661		III	LF				+			+					
WESTERN REGIONAL LANDFILL		916-543-3960		III	LF	+			+			+					
WESTWOOD LANDFILL	_	530-252-1273		III	LF												
YOLO COUNTY CENTRAL LANDFILL	S	530-666-8852	YOLO	II, III	LF, SI				+		1			+			

LF = Landfill

LT = Land Treatment Unit

SA = Soil Amendment

SI = Surface Impoundment

U = Unclassified